

AMENDMENT AFTER FINAL

U.S. Appl. No. 10/631,220
Page 5REMARKS

Claims 1-17 are pending.

I. Information Disclosure Statement

Applicant thanks the Examiner for considering the Information Disclosure Statement filed on January 31, 2005.

II. Claim Amendment/New Claim

Claim 1 has been amended to recite that the illumination pattern has a greater size than the size of the exit end of the optical fiber, and new claim 17 recites that the size of the illumination pattern is approximately three times the size of the optical fiber. These claims are supported by Figs. 7, 9 and 11.

III. Claim Objections

Claims 1 and 15 stand objected to for formal matters. The Office Action submits that the elements "said optical pattern" and "said illumination pattern" are confusing, apparently in light of claim 7, which recites the laser light provide the illumination pattern.

Initially, Applicant respectfully presents that claim 7 is an independent claim, and as such, should not be read in light of claim 1. Moreover, as described throughout the specification, according to the present invention, the beam of light is received at an input end of an optical fiber, and transmitted to the exit end. The exit end is provided with "at least one diffractive optical pattern." Examples of the optical patterns are shown in Figs. 3A, 4A, 4B, 5A, 5B, 6A, 6B. Examples of the resulting illumination patterns are shown in Figs. 8 and 12. Thus, both the optical pattern (claim 1) and the laser light (claim 7) are used to provide the even illumination pattern. Applicant respectfully submits that to one of ordinary skill in the art, the language of claims 1 and 7 is not confusing.

Applicant notes the inconsistency in claim 15. Accordingly, claim 15 has been corrected.

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Page 6**IV. 35 USC§102**

Claims 1-5 stand rejected under 35 USC§ 102(b) as allegedly being anticipated by WO 02/33463. In the Amendment filed January 31, 2005, Applicant distinguished the presently claimed invention from that which is described by WO '463. Specifically, Applicant presented that WO '463 relates to an optical collimator, which, by definition, causes the light rays passing therethrough, to become parallel, and the resulting illumination pattern to have size equivalent to the size of the optical fiber.

However, even if a collimator may result in an even illumination pattern, the illumination pattern is only the size of the output fiber, typically less than 100 μm . Thus, because a collimator cannot create anything but a beam approximately the size of the collimator itself, it cannot illuminate a whole target.

Thus, the present claims have been amended to distinguish over the collimator of WO '463. Specifically, the claims presently recite a device for projecting even illumination from a fiber coupled laser so that a target can be completely illuminated. See, e.g., Figure 7 of the Fiber present specification, which illustrates the type of pattern illuminated—something much larger than the output aperture of the fiber optic system, for example, nearly three time as large.

As the light beams from a collimator, such as described by WO '463, are parallel, they cannot diverge to form a pattern larger in size than the size of the exit end of the optical fiber.

Claims 2-5 distinguish over WO '463 at least as does base claim 1. Even if the diffractive optical pattern of Figure 4 of the reference is formed from etching, molding and/or cutting and is “*one of a binary or multi-level diffractive pattern or is continuous*;” there is no indication that such a diffractive pattern would produce an even illumination pattern, having a size greater than the size of the end of the optical fiber.

Thus, claims 1-5 are not anticipated by the reference.

Further, as this reference, alone, contains no teaching or suggestion to modify the diffractive optical pattern of the end of an optical fiber, Applicant respectfully submits that this reference, alone, does not render the present claims obvious.

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Page 7V. 35 USC§ 103A. Claim 6

Claim 6 stands rejected under 35 USC§ 103(a) as allegedly being unpatentable over WO '463 in view of Tranchita et al. (U.S. Patent No. 5,973,730). The Office Action asserts WO '463 teaches each feature of the claim, except for the optical fiber being coupled to a laser diode at the input end.

However, even if Tranchita et al. teaches an optical fiber coupled to a laser diode at the output end, Applicant respectfully submits that the combination fails to teach each or suggest each feature recited by the rejected claim. Specifically, as discussed above, WO '463 neither teaches or suggests to select an optical diffraction pattern to produce an even illumination pattern projected at the target, wherein the illumination pattern is greater in size than the size of the exit end of the fiber. Accordingly, reconsideration is respectfully requested.

B. Claim 16

Claim 16 stands rejected under 35 USC§ 103(a) as allegedly being unpatentable over WO '463. The Office Action asserts WO '463 teaches each feature of the claim, except for the fiber being a multi-mode fiber.

Even if multi-mode fibers are conventional in the art, as stated in the Office Action, Applicant respectfully submits that claim 16 also distinguishes over the reference as does base claim 1. In light of the amendments to claim 1, reconsideration is respectfully requested.

C. Claims 7-14

Claims 7-14 stand rejected under 35 USC§ 103(a) as allegedly being unpatentable over Tranchita et al. in view of WO '463.

Thus, as discussed above, because neither of these references teaches or suggests to modify the diffraction pattern of the exit end of the optical fiber to achieve an even illumination pattern at the target wherein the illumination pattern is greater in size than that of the exit end of the optical fiber, Applicant respectfully presents that claims 7-14 are allowable over the cited references.

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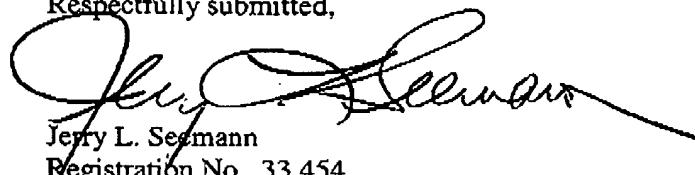
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Page 8D. Claim 15

Claim 15 stands rejected under 35 USC§ 103(a) as allegedly being unpatentable over Tranchita et al. in view of WO '463. However, as neither Tranchita et al. nor WO '463 teach a diffraction pattern of the exit end of the optical fiber to achieve an even illumination pattern at the target wherein the illumination pattern is greater in size than that of the exit end of the optical fiber, Applicant respectfully presents that claim 15 is allowable over the cited references.

VI. Conclusion

In view of the above, it is respectfully submitted that all objections and rejections are overcome. Thus, a Notice of Allowance is respectfully requested.

Respectfully submitted,

Date: 7/15/05

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